

PHYSICS 110B OUTLINE AND SCHEDULE

Fall 2004 (Strovink)

Week No.	Day	Week of...	Lecture reference	Topic	P.S. due	Exer- cises
			[G=Griffiths, SCSR = Short Course in Special Relativity (handout), P=Pedrotti]		5 PM	
1	M	30-Aug	G 10.1.1	Scalar and vector potentials		
	W		G 10.1.2-3	Gauge invariance; Lorentz gauge		
	F		↑	Special relativity		
2	M	6-Sep	SCSR	LABOR DAY HOLIDAY		
	W		and references	Special relativity	1	1-5
	F			Special relativity		
3	M	13-Sep	given	Special relativity	2	6-9
	W		on its	Special relativity		
	F		last	Special relativity	3	10-15
4	M	20-Sep	page	Special relativity		
	W		↓	Special relativity	4	16-20
	F			Fields of a uniformly moving point charge (relativistic approach)		
5	M	27-Sep	G 10.2.1	Retarded potentials	5	21-25
	W		G 10.3.1	Liénard-Wiechert potentials; fields of a moving point charge		
	F	(1-Oct)		EXAM 1 [EM potentials and special relativity (exercises 1-25)]		
6	M	4-Oct	G 10.3.2	Fields of a uniformly moving point charge (retarded potential approach)		
	W			Laplace's equation in spherical polar coordinates	6	26-30
	F		G 3.3.2, G3.4	Multipole expansion of the electrostatic potential		
7	M	11-Oct		Vector multipole expansion of the EM field		
	W		G 11.1.1-4	Nonrelativistic (NR) multipole radiation	7	30-36
	F		G 11.1.1-4	NR electric dipole radiation		
8	M	18-Oct	G 11.1.1-4	NR dipole radiation	8	37-41
	W		G 11.2.1	Radiation by a relativistic point charge; bremsstrahlung		
	F	(22-Oct)		EXAM 2 [special relativity, retarded potentials, NR radiation (ex. 26-41)]		
9	M	25-Oct	G 11.2.1	Bremsstrahlung and synchrotron radiation		
	W		P 14	Matrix analysis of polarization	9	42-47
	F		P 14	Matrix analysis of polarization		
10	M	1-Nov	P 14; P 10,12	Matrix analysis of polarization; interference and coherence		
	W		P 10,12	Interference and coherence	10	48-52
	F		P 10,12	Interference and coherence		
11	M	8-Nov	P 11,19	Multiple reflections		
	W		P 11,19	Multiple reflections	11	53-59
	Th	(11-Nov)		VETERANS DAY HOLIDAY		
	F		P 16	Fraunhofer diffraction		
12	M	15-Nov		EXAM 3 [radiation by a point charge, polarization (exercises 42-59)]		
	W		P 16	Fraunhofer diffraction		
	F		P 17	Fraunhofer diffraction (grating)	12	60-65
13	M	22-Nov	P 25	Fourier optics		
	Tu	(23-Nov)	P 25	Fourier optics (W 10-11 lecture moved to Tu 5-6)		
	Th	(25-Nov)		THANKSGIVING HOLIDAY		
14	M	29-Nov	P 18	Fresnel diffraction		
	W		P 21,22	Lasers	13	66-72
	F		P 21,22	Lasers		
15	M	6-Dec		EXAM 4 [interference, reflections, Fr'fer diffraction, Fourier optics (ex. 60-72)]		
	W		P 13	Holograms		
	F		---	Review		
	F	(10-Dec)		INSTRUCTION ENDS		
16	M	13-Dec	---	Self-study day		
	Tu	(14-Dec)		FINAL EXAM (Group 1, 8-11 AM)		